Glenn Jones
Chemrock Corporation
1451 State Road 25 West
Lafayette, Indiana 47905

Dear Glenn Jones:

Re: Exempt Construction and Operation Status,
157-12530-00031

The application from Chemrock Corporation, received on July 26, 2000, has been reviewed. Based on the data submitted and the provisions in 326 IAC 2-1.1-3, it has been determined that the following expanded perlite production source, to be located at 1451 State Road 25 West in Lafayette, Indiana, is classified as exempt from air pollution permit requirements:

(a) Two vertical expansion furnaces, designated as Furnace #1 and Furnace #2, each rated at 4 MMBTU/hr, each rated at 1.1 tons of material per hour, each fueled by natural gas, each controlled by a cyclone and a baghouse.

(b) Milling and classifying operations controlled by a baghouse.

(c) Three ore storage silos with a capacity of 59 tons each. Material is pneumatically conveyed to and from these silos.

(d) Four ore storage bins with two having a capacity of 107 tons and two having a capacity of 160 tons . Material is pneumatically conveyed to and from these bins.

(e) A silane solution spraying operation associated with the process involving Furnace #2.

The following conditions shall be applicable:

(1) Pursuant to 326 IAC 5-1-2 (Opacity Limitations) except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following:

(a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

(b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of 15 minutes (60 readings) in a 6-hour period as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor in a six (6) hour period.

(2) Pursuant to 326 IAC 6-3 (Process Operations), the particulate matter emissions from the perlite processing shall be limited to 4.37 pounds per hour, based upon a process weight of 2200 pounds per hour.

An application or notification shall be submitted in accordance with 326 IAC 2 to the Office of Air Management (OAM) if the source proposes to construct new emission units, modify existing emission units, or otherwise modify the source.

Sincerely,

Paul Dubenetzky, Chief
Permits Branch
Office of Air Management

drp
cc: File - Tippecanoe County
Tippecanoe County Health Department
Air Compliance - Eric Courtright
Permit Tracking - Janet Mobley
Technical Support and Modeling - Michele Boner
Compliance Data Section - Karen Nowak

Indiana Department of Environmental Management
Office of Air Management

Technical Support Document (TSD) for a**n Exemption**

Source Background and Description

Source Name: ***Chemrock Corporation***
Source Location: ***1451 State Road 25 West, Lafayette, Indiana 47905***
County: ***Tippecanoe***
SIC Code: ***3295***
Operation Permit No.: **157-12530-00031**
Permit Reviewer: ***drpoole***

The Office of Air Management (OAM) has reviewed an application from Chemrock Corporation relating to the construction and operation of an expanded perlite production source.

Permitted Emission Units and Pollution Control Equipment

The source consists of the following permitted emission units and pollution control devices:

(a) Two vertical expansion furnaces, designated Furnace #1 and Furnace #2, each rated at 4 MMBTU/hr, each rated at 1.1 tons of material per hour, each fueled by natural gas, each controlled by a cyclone and a baghouse.

(b) Milling and classifying operations controlled by a baghouse.

(c) Three ore storage silos with a capacity of 59 tons each. Material is pneumatically conveyed to and from these silos.

(d) Four ore storage bins with two having a capacity of 107 tons and two having a capacity of 160 tons. Material is pneumatically conveyed to and from these bins.

(e) A silane solution spraying operation associated with the process involving Furnace #2.

Existing Approvals

The source has been operating under previous approvals including, but not limited to, the following:

(a) *OP 79-03-92-0435* issued on August 19, 1988 and

(b) An exemption issued on December 7, 1987.

Enforcement Issue

There are no enforcement actions pending.

Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (^{0}F)
Furnace #1	-			8000	
Furnace #2	-			5000	

Recommendation

The staff recommends to the Commissioner that the operation be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

A complete application for the purposes of this review was received on July 26, 2000.

Emission Calculations

See Appendix A of this document for detailed emissions calculations (two pages).

Additionally, the process emissions for the furnace are (using factors from AP-42, Table 11.30):

(0.29 pounds of PM/ ton material)(4400 pounds of material/hour)(1 ton/2000 lb)(1 ton/2000 lb)(8760 hr/yr)

= 2.8 tons of PM per year

	PM (ton/yr)	PM-10(ton/yr)	SO2 (ton/yr)	NOx (ton/yr)	VOC(ton/yr)	CO (ton/yr)
Combustion	0.3	0.3	Negligible	3.5	0.2	2.9
Process	2.8	2.8	-	-	-	-
Total	3.1	3.1	Negligible	3.5	0.2	2.9

Potential To Emit of Source Before Controls

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as “the maximum capacity of a stationary source or emissions unit to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA, the department, or the appropriate local air pollution control agency.”

Pollutant	Potential To Emit (tons/year)
PM	3.1
PM-10	3.1
SO_2	Negligible
VOC	0.2
CO	2.9
NO_x	3.5

The source has no HAP emissions.

(a) The potential to emit (as defined in 326 IAC 2-7-1(29)) of pollutants are less than the levels listed in 326 IAC 2-1.1-3(d)(1). Therefore, the source is subject to the provisions of 326 IAC 2-1.1-3.

County Attainment Status

The source is located in Tippecanoe County.

Pollutant	Status **(attainment, maintenance attainment, or unclassifiable; severe, moderate, or marginal nonattainment)**
PM-10	unclassifiable
SO_2	attainment
NO_2	unclassifiable
Ozone	attainment
CO	unclassifiable
Lead	not designated

(a) Volatile organic compounds (VOC) and oxides of nitrogen (NOx) are precursors for the formation of ozone. Therefore, VOC emissions are considered when evaluating the rule applicability relating to the ozone standards. Tippecanoe County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NOx emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

(b) Tippecanoe County has been classified as attainment or unclassifiable for the other criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

(c) Fugitive Emissions
Since this type of operation is not one of the 28 listed source categories under 326 IAC 2-2, 40 CFR 52.21, or 326 IAC 2-3 and since there are no applicable New Source Performance Standards that were in effect on August 7, 1980, the fugitive particulate matter (PM) and volatile organic compound (VOC) emissions are not counted toward determination of PSD and Emission Offset applicability.

Source Status

Existing Source PSD Definition (emissions after controls, based on 8,760 hours of operation per year at rated capacity and/ or as otherwise limited):

Pollutant	Emissions (ton/yr)
PM	0.6
PM10	0.6
SO_2	Negligible
VOC	0.2
CO	2.9
NO_x	3.5
Single HAP	-
Combination HAPs	-

(a) This existing source is **not** a major stationary source because no nonattainment regulated pollutant is emitted at a rate of 100 tons per year, and it is not in one of the 28 listed source categories.

Part 70 Permit Determination

326 IAC 2-7 (Part 70 Permit Program)

This existing source is not subject to the Part 70 Permit requirements because the potential to emit (PTE) of:

(a) each criteria pollutant is less than 100 tons per year,
(b) a single hazardous air pollutant (HAP) is less than 10 tons per year, and
(c) any combination of HAPs is less than 25 tons/year.

Federal Rule Applicability

(a) There are no New Source Performance Standards (NSPS)(326 IAC 12 and 40 CFR Part 60) applicable to this source.

(b) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs)(326 IAC 14 and 40 CFR Part 63) applicable to this source.

State Rule Applicability - Entire Source

326 IAC 2-6 (Emission Reporting)

This source is located in Tippecanoe County and the potential to emit of any of the criteria pollutants is less than one hundred (100) tons per year. Therefore, 326 IAC 2-6 does not apply.

326 IAC 5-1 (Visible Emissions Limitations)

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following, unless otherwise stated in this permit:

(a) Opacity shall not exceed an average of forty percent (40%) any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

(b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

State Rule Applicability - Individual Facilities

326 IAC 6-3-2 (Process Operations)

The particulate matter (PM) from the perlite processing shall be limited to 4.37 pounds per hour, based upon a process weight rate of 2200 pounds per hour.

The actual emission rate is 1.4 tons per year before controls. This equates to a rate of 0.32 pounds per hour before controls. Using an efficiency of 90% for the baghouse, the emissions after controls would be 0.03 pounds per hour. Therefore, the process meets the rule before controls.

Conclusion

The operation of this expanded perlite source shall be subject to the conditions of the attached proposed Exemption 157-12530-00031.

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <10 and >0.3
Furnaces

Company Name: **Chemrock Corporation**
Address City IN Zip: **1451 State Road 25 West, Lafayette, Indiana 47905**
CP: **157-12530**
Plt ID: **157-00031**
Reviewer: drp
Date: 12/19/00

Heat Input Capacity MMBtu/hr	Potential Throughput MMCF/yr
8.0	70.1

	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	7.6	7.6	0.6	100.0 **see below	5.5	84.0
Potential Emission in tons/yr	0.3	0.3	0.0	3.5	0.2	2.9

*PM emission factor is filterable PM only. PM10 emission factor is condensable and filterable PM10 combined.
**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology

All emission factors are based on normal firing.
MMBtu = 1,000,000 Btu
MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu
Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98)
Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton
Note: Check the applicable rules and test methods for PM and PM10 when using the above emission factors to confirm that the correct factor is used (i.e., condensable included/not included).

See page 2 for HAPs emissions calculations.

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <10 and >0.3
Furnaces
HAPs Emissions

Company Name: **Chemrock Corporation**
Address City IN Zip: **1451 State Road 25 West, Lafayette, Indiana 47905**
CP: **157-12530**
Plt ID: **157-00031**
Reviewer: drpoole
Date: December 22, 2000

HAPs - Organics

	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene
Emission Factor in lb/MMcf	2.1E-03	1.2E-03	7.5E-02	1.8E+00	3.4E-03
Potential Emission in tons/yr	7.358E-05	4.205E-05	2.628E-03	6.307E-02	1.191E-04

HAPs - Metals

	Lead	Cadmium	Chromium	Manganese	Nickel
Emission Factor in lb/MMcf	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03
Potential Emission in tons/yr	1.752E-05	3.854E-05	4.906E-05	1.332E-05	7.358E-05

Methodology is the same as page 1.

The five highest organic and metal HAPs emission factors are provided above.
Additional HAPs emission factors are available in AP-42, Chapter 1.4.